Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) A bacterial host cell that produces a heterologous metabolite, the cell comprising a nucleic acid sequence comprising a promoter and nucleic acid sequence encoding a heterologous ~~polypeptide~~ biosynthetic enzyme for production of the heterologous metabolite; the nucleic acid sequence being operably linked to the promoter which is controlled by a response regulator protein; the host cell being genetically modified by deletion or inactivating mutation of a gene encoding a histidine protein kinase having specificity for the response regulator protein such that the promoter is regulated by acetyl phosphate in the absence of nitrogen starvation.

2. (original) The host cell of claim 1 wherein the bacterial cell is an E. coli cell.

3. (original) The host cell of claim 1 wherein the promoter is controlled by a response regulator protein selected from the list consisting of ntrC, phoB, phoP, ompR, cheY, creB, and torR.

4. (original) The host cell of claim 3 wherein the promoter is bound by ntrC.

5. (original) The host cell of claim 4 wherein the promoter is *glnAp2*.

6. (cancelled)

7. (original) The host cell of claim 6 wherein the histidine protein kinase is encoded by glnL.

8. (cancelled)

9. (currently amended) A bacterial host cell comprising a first expression cassette comprising a promoter and a nucleic acid sequence encoding a first enzyme ~~required for~~ that catalyzes biosynthesis of a heterologous metabolite; the nucleic acid sequence being operably linked to the promoter which is regulated by acetyl phosphate in the absence of nitrogen starvation; and nucleic acid sequences expressing other enzymes ~~required for~~ that catalyze biosynthesis of the metabolite.

10. (original) The host cell of claim 9 wherein the metabolite is an isoprenoid.

11. (original) The host cell of claim 10 wherein the isoprenoid is a carotenoid.

12. (original) The host cell of claim 10 wherein the isoprenoid is lycopene, β-carotene, astaxanthin, or one of their precursors.

13. (original) The host cell of claim 10 wherein the first enzyme is isopentenyl diphosphate isomerase, geranylgeranyl diphosphate synthase, or 1-deoxyxylulose 5-phosphate synthase.

14. (original) The host cell of claim 9 wherein the first enzyme is phosphoenolpyruvate synthase.

15. (cancelled)

16. (currently amended) The host cell of claim ~~15~~ 9 wherein the bacterial cell is an *E. coli* cell.

17. (currently amended) The host cell of claim ~~15~~ 9 wherein the cell is lacking a functional histidine protein kinase gene.

18. (currently amended) The host cell of claim ~~15~~ 9 wherein the promoter is controlled by ntrC, phoB, ompR, cheY, creB, phoP, or torR.

19. (original) The host cell of claim 18 wherein the promoter is bound by ntrC.

20. (original) The host cell of claim 19 wherein the promoter is *glnAp2*.

21. (original) The host cell of claim 10 wherein the host cell further contains a second expression cassette comprising a nucleic acid sequence encoding a phosphoenolpyruvate synthase operably linked to a promoter which is regulated by acetyl phosphate concentration.

22. (withdrawn) A method of producing a heterologous isoprenoid [[s]] in a host cell, the method comprising:

providing the host cell of claim 9, wherein the first enzyme is a biosynthetic enzyme that catalyzes synthesis of the heterologous isoprenoid;

overexpressing a heterologous phosphoenolpyruvate synthase; and

expressing biosynthetic enzymes required for synthesis of the heterologous isoprenoid.

23. (withdrawn) A method of producing a lycopene in a bacterial host cell, the method comprising:

expressing a heterologous 1-deoxy-D-xylulose 5-phosphate synthase, a heterologous geranylgeranyl diphosphate synthase, a heterologous phytoene synthase, and a heterologous phytoene desaturase, at least one of which is expressed from a coding nucleic acid whose transcription is controlled by ntrC and acetyl phosphate concentration.

24. (currently amended) A kit comprising (i) a nucleic acid sequence containing a promoter controlled by a response regulator protein such that the promoter is regulated by acetyl phosphate in a defined bacterial host cell; and (ii) the defined host cell which is genetically modified by deletion or inactivating mutation of a histidine protein kinase gene.

25. (original) A nucleic acid sequence comprising a promoter and a sequence encoding a biosynthetic enzyme required for that production of a first metabolite, the sequence being operably linked to the promoter which is regulated by a second metabolite whose concentration is indicative of availability of a precursor for the biosynthesis of the first metabolite.

26. (original) The nucleic acid sequence of claim 25 wherein the second metabolite is a waste product produced from a precursor for the biosynthesis of the first metabolite.

27. (original) The nucleic acid sequence of claim 25 wherein the first metabolite is an isoprenoid.

28. (original) The nucleic acid sequence of claim 27 wherein the isoprenoid is a carotenoid.

29. (original) The nucleic acid sequence of claim 28 wherein the isoprenoid is lycopene, β-carotene, astaxanthin, or one of their precursors.

30. (original) The nucleic acid sequence of claim 25 wherein the second metabolite is acetyl phosphate, cAMP, fructose 1-phosphate, or fructose 6-phosphate.

31. (original) The nucleic acid sequence of claim 30 wherein the second metabolite is acetyl phosphate.

32. (original) The nucleic acid sequence of claim 31 wherein the promoter is controlled by ~~ntrC,~~ phoB, ompR, cheY, creB, phoP, or torR.

33. (currently amended) The nucleic acid sequence of claim ~~32~~ 31 wherein the promoter is bound by ntrC.

34. (original) The nucleic acid sequence of claim 33 wherein the promoter is *glnAp2*.

35. (original) The nucleic acid sequence of claim 27 wherein the biosynthetic enzyme is isopentenyl diphosphate isomerase, geranylgeranyl diphosphate synthase, 1-deoxyxylulose 5-phosphate synthase, or phosphoenolpyruvate synthase.

36. (new) The host cell of claim 1 wherein the cell is a *Bacillus subtilis, Salmonella typhimurium, Agrobacterium tumefaciens, Thermus thermophilus,* or *Rhizobium leguminosarum* cell.

37. (new) The host cell of claim 1 wherein the heterologous metabolite is a polyketide.

38. (new) The host cell of claim 1 wherein the heterologous metabolite is a polyhdroxyalkanoate.

39. (new) A bacterial host cell comprising:

(i) a genetic alteration inactivating the glnL gene; and

(ii) a nucleic acid sequence comprising a coding sequence encoding a phosphoenol pyruvate synthetase (pps) and an operably linked promoter that is regulated by ntrC and acetyl phosphate.

40. (new) A bacterial host cell comprising:

(i) a genetic alteration inactivating the glnL gene; and

(ii) a nucleic acid sequence comprising a coding sequence encoding a biosynthetic enzyme that catalyzes production of an isoprenoid, polyketide, or polyhdroxyalkanoate, and an operably linked promoter that is regulated by ntrC and acetyl phosphate.

41. (new) The host cell of claim 40 wherein the biosynthetic enzyme is isopentenyl diphosphate isomerase, geranylgeranyl diphosphate synthase, 1-deoxyxylulose 5-phosphate synthase, or phosphoenolpyruvate synthase.

42. (new) The kit of claim 24 wherein the defined host cell is an *E. coli* host cell.

43. (new) The kit of claim 42 wherein the histidine kinase gene is glnL and the response regulator is ntrC.

44. (new) The kit of claim 42 wherein the nucleic acid further comprises a restriction enzyme polylinker located 3' of the promoter such that transcription of a sequence inserted into the polylinker is controlled by the promoter.

45. (new) The kit of claim 42 wherein the promoter is the glnAp2 promoter.

46. (new) A method of producing a heterologous metabolite in a bacterial host cell, the method comprising:

providing the host cell of claim 1; and

culturing the host cell under conditions such that acetyl phosphate triggers the promoter.

47. (new) The method of claim 46 in which the culturing comprises nitrogen rich conditions.

48. (new) The method of claim 46 in which the culturing comprises growth to late logarithmic growth or stationary phase.